What is claimed:

1. A purified and isolated DNA molecule having a nucleotide sequence encoding human M-Ras or functionally equivalent fragments thereof.

2. A purified and isolated DNA molecule having a nucleotide sequence encoding murine M-Ras or functionally equivalent fragments thereof.

3. The purified and isolated DNA molecule of claim 1 or 2, wherein said DNA molecule is genomic.

4. A chemically synthesized DNA molecule having a nucleotide sequence encoding human M-Ras or functionally equivalent fragments thereof.

5. A chemically synthesized DNA molecule having a nucleotide sequence encoding murine M-Ras or functionally equivalent fragments thereof.

6. A purified and isolated RNA molecule having a nucleotide sequence encoding human M-Ras or functionally equivalent fragments thereof.

7. A purified and isolated RNA molecule having a nucleotide sequence encoding murine M-Ras or functionally equivalent fragments thereof.

8. A purified and isolated polypeptide having an amino acid sequence comprising human M-Ras or functionally equivalent fragments thereof.

9. A purified and isolated polypeptide having an amino acid sequence comprising murine M-Ras or functionally equivalent fragments thereof.

10. A method of alleviating asthma-related disorders by administering to patients in need of such treatment an equivalent amount of a compound to down-regulate the function of human M-Ras.

11. A method according to claim 10 wherein the compound comprises a farnesyl transferase inhibitor.

12. A method according to claim 11 wherein the farnesyl transferase inhibitor is manumycin A.

13. A method according to claim 11 wherein the farnesyl transferase inhibitor is lovastatin.

14. A method according to claim 10 wherein the compound comprises a geranylgeranyl transferase inhibitor.

15. A method according to claim 10 wherein the compound comprises an aminosterol.

16. A method according to claim 15 wherein the aminosterol is 1409.

17. A method according to claim 10 wherein the compound comprises an inhibitor of the MAPK pathway.

18. A method according to claim 17 wherein the inhibitor of the MAPK pathway is PD98059.

19. A method according to claim 17 wherein the inhibitor of the MAPK pathway is SB202190.

20. A method for detecting or diagnosing susceptibility to asthma-related disorders and certain lymphomas and leukemias associated with elevated levels of M-Ras polypeptide in a human subject comprising the steps of:

(a) measuring the level of M-Ras polypeptide in a biological sample from said human subject; and

(b) comparing the level of M-Ras polypeptide present in normal subjects, wherein an increase in the level of M-Ras polypeptide as compared to normal levels indicates a predisposition to asthma-related disorders and certain lymphomas or leukemias.

21. A method for monitoring a therapeutic treatment of asthma-related disorders or certain lymphomas or leukemias associated with elevated levels of M-Ras polypeptide in a human subject comprising; measuring the levels of M-Ras polypeptide in a series of biologic samples obtained at different time points from said subject undergoing therapeutic treatment wherein a significant decrease in said levels of M-Ras polypeptide indicates a successful therapeutic treatment.

22. A method of treating a tumor by administering to patients in need of such treatment an effective amount of a compound to down-regulate the function of human M-Ras.

23. A method according to claim 22 wherein the compound comprises a farnesyl transferase inhibitor.

24. A method according to claim 23 wherein the farnesyl transferase inhibitor is manumycin A.

25. A method according to claim 23 wherein the farnesyl transferase inhibitor is lovastatin.

26. A method according to claim 22 wherein the compound comprises a geranylgeranyl transferase inhibitor.

27. A method according to claim 22 wherein the compound comprises an aminosterol.

28. A method according to claim 27 wherein the aminosterol is 1409.

29. A method according to claim 22 wherein the compound comprises an inhibitor of the MAPK pathway.

30. A method according to claim 29 wherein the inhibitor of the MAPK pathway is PD98059.

31. A method according to claim 29 wherein the inhibitor of the MAPK pathway is SB202190.

32. A method according to claim 22, wherein the tumor is a T cell lymphoma.

33. A method according to claim 22, wherein the tumor is a T cell leukemia.

34. A method according to claim 22, wherein the tumor is Hodgkin's lymphoma.

35. A method according to claim 22, wherein the tumor is Mycosis fungoides.

36. A method of preparing an antibody specific to an M-Ras polypeptide encoded by the DNA molecule of claims 1 or 2 or fragments thereof comprising the steps of:

(a) conjugating the M-Ras polypeptide or fragments thereof containing at least ten amino acids to a carrier protein;

(b) immunizing a host animal with said M-Ras polypeptide fragment-carrier protein conjugate admixed with an adjuvant; and

(c) obtaining antibody from the immunized host animal.

37. The method of claim 36 wherein the antibody is a monoclonal.

38. A method of quantifying a M-Ras polypeptide of claim 8 or 9 comprising the steps of:

(a) contacting a sample suspected of containing M-Ras polypeptide with an antibody that specifically binds to the M-Ras polypeptide under conditions that allow for the formation of reaction complexes comprising the antibody and M-Ras polypeptide; and

(b) detecting the formation of reaction complexes comprising the antibody and M-Ras polypeptide in the sample, wherein quantitation of the reaction complexes indicates the level of M-Ras polypeptide in the sample.

39. A method for identifying antagonists of M-Ras comprising the steps of:

(a) obtaining a cell line that is responsive to IL-9;

(b) growing said cell line in the presence of IL-9;

(c) comparing the characteristics of IL-9 induction with those obtained with pretreatment with a possible M-Ras antagonist agent; and

(d) selecting those agents for which pretreatment diminished the characteristics.

40. The method according to claim 39 wherein the cell line is taken from the group consisting of: murine TS2 cells, murine BW5147 cells, murine TS1-RA3 cells transfected with the human IL-9 receptor and human K562 cells.

41. A nucleic acid molecule having a nucleotide sequence encoding a M-Ras polypeptide comprising a valine at an amino acid residue corresponding to residue 22 of SEQ ID NO:2 or SEQ ID NO: 4.

42. A nucleic acid molecule having a nucleotide sequence encoding a M-Ras polypeptide comprising a lysine at an amino acid residue corresponding to residue 71 of SEQ ID NO:2 or SEQ ID NO:4.

43. A nucleic acid molecule having a nucleotide sequence encoding a M-Ras polypeptide comprising a lysine at an amino acid residue corresponding to residue 22 of SEQ ID NO:2 or SEQ ID NO:4.

44. A method for identifying antagonists of M-Ras comprising the steps of:

(a) obtaining a cell line that expresses a constitutively active M-Ras molecule;

(b) treating said cell line with possible M-Ras antagonist agents; and

(c) selecting those agents for which treatment diminished the activity of M-Ras.

45. The method of claim 44 wherein the constitutively active M-Ras is encoded by a nucleic acid molecule of any one of claims 41-43.

46. Antisense DNA comprising the antisense sequence of human M-Ras or active fragments thereof.

47. A method according to claim 10 wherein the compound is the antisense DNA of claim 46.

48. A method according to claim 22 wherein the compound is the antisense DNA of claim 46.

49. An isolated nucleic acid molecule which hybridizes under stringent conditions to a nucleic acid molecule having a sequence complementary to either SEQ ID NO:1 or SEQ ID NO:3.

50. An isolated polypeptide encoded by the nucleic acid molecule of claim 49.

51. The purified and isolated DNA molecule of claim 1 comprising the sequence of SEQ ID NO:3.

52. The purified and isolated DNA molecule of claim 2 comprising the sequence of SEQ ID NO:1